

GENERAL NOTES

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NOTES ON THE PARASITISM OF *ROTHSCHILDIA* SP. PUPAE (SATURNIIDAE) IN GUANACASTE PROVINCE, COSTA RICA

Tachinid flies (Diptera) comprise a major source of pupal mortality in *Rothschildia* spp. (Saturniidae) in El Salvador (Quezada, 1967, *Ann. Entomol. Soc. Amer.* 60:595-599). In spite of the broad geographical distribution of *Rothschildia* in Central America (Ferguson, 1972, *The moths of America north of Mexico*, Bombycoidea-Saturniidae, E. W. Classey, London, 275 pp.), little has been published on similar mortality agents on pupae for other localities. In this note I report some qualitative observations on pupal mortality in *Rothschildia* sp. from lowland Guanacaste Province, Costa Rica since (1) such data for this moth genus in Costa Rica are lacking, and (2) a hymenopterous species was discovered, providing a significant difference from the El Salvador studies (Quezada, *op. cit.*).

Five intact cocoons of *Rothschildia* sp. were collected from one bush (1.5 m tall) in a roadside patch of deciduous forest about 5 km north of Bagaces (10°31'N, 85°15'W) along the Pan-American Highway on 2 March 1984. The cocoons were placed in a small "Zip-Loc" bag without close examination. About two months later (10 May) I noticed numerous newly emerged small wasps inside the bag. Upon closer examination I determined that a total of 67 wasps, all apparently the same species, emerged from two of the cocoons. All five cocoons were opened to determine the condition of the pupae. In one of the two cocoons from which wasps emerged, the pupa appeared mummified but with numerous, small round holes, apparently the exit sites of the wasps. The second parasitized pupa had no such holes but was broken open in the abdominal region. A single dead wasp was found at the bottom of the pupal cavity in each of these cocoons. Curiously and yet-to-be explained, a third cocoon was completely devoid of a pupa, pupal or larval exuvium, but had dried mud "caked" to the bottom of the pupal cavity. This cocoon also had a small round hole near the top (but not the emergence valve for the moth) tightly plugged with mud. This hole was about twice the diameter of the wasp emergence holes in the pupal cuticle found in one of the cocoons. A fourth cocoon contained a dead, mummified pupa, one dead wasp, and when broken apart, appeared to contain many mold spores. The fifth cocoon contained a hardened, mummified, but otherwise intact, dead pupa.

The wasps were determined to be *Spilochalcis* sp. (Hymenoptera: Chalcididae).

Although pupal parasitism in *Rothschildia* spp. in El Salvador is attributable primarily to tachinids, a low percentage of parasitism by an ichneumonid was also observed (Quezada, *op. cit.*). Quezada does not mention chalcids as being a pupal parasite of these silk moths in El Salvador. While the cocoons in my study were clearly *Rothschildia*, it was not possible to confirm a species determination since no viable adults were obtained. Although my sample size is terribly small, it is also interesting to note that these pupae had been collected during the pronounced dry season of the region, but the adult parasites did not appear until the end of this period.

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